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Case Report

Clinico-Therapeutic Management of First & Second Degree Burns in Cattle & Buffaloes

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ABSTRACT

The manuscript deals with accidental burns in fourteen animals (Holstein Friesian, Jersey cattle and Murrah buffaloes) due to accidental severe burns on dorsal surface, area of neck to pin bone which involve the epidermis and dermis layer of the skin. The animals were treated for hypovolemia shock and prevent secondary bacterial infection in addition to wound management.

Key words: Wounds, Burns, Buffalo, Cow, Fire

INTRODUCTION

Burns are not uncommon in animals due to accident. There are many different sources of burn lesions: electrical, chemical, direct heat and fire. Of these fire burns are common in large animals kept in thatched shed. The burns are classified into first degree, second degree, third degree burns based on the extent of destruction of the tissue. Mostly the cases of burns in animal's occurred due to accident (Tyagi & Singh, 2002). Second degree burns are those which involve the epidermis and dermis layers of the skin. The first and second degree burns are together grouped as group I (Davis, 1984). Burn are not only dermatological problem but also poses many complications (shock, sepsis, anemia, respiratory failure etc.) along with trauma. The local response is one of inflammation vasospasm fluid accumulation and electrolyte shifts depending upon the extent of the thermal injury (Geiser & Walker, 1984). The cases of burn by flame or fire are reported frequently and chemical burns are uncommon (Yadav *et al.*, 2010). The present paper deals with fourteen cases of first and second degree burn in bovine due to fire and its therapeutic management.

Case history and clinical observations

Animal fire accident occurred at Udawaas village, Jhunjhunu district in Rajasthan state on first January, 2014. Total fourteen cases of animals burns which include cattle and buffalo (Four cross bred cows and four cow heifers (Holstein Friesian & Jersey) and six Murrah buffaloes and buffalo heaifer) were presented in veterinary hospital with the history of accidental and severe burns. The animals were trapped in an accidental fire. The burns were due to the fact the animals shed caught fire. The animals were tied in the sheds made up of waste materials and dry grasses, at that moment the animal were restrained and could not escape. Animals were reported at hospital within 3-5 hours of the accident. These cases were vetero-legal. FIR lodged in police station, Jhunjhunu and owner got clime.

On clinical examination of the all affected cattle and buffalo, the rectal temperature was subnormal in one cattle and other animals have slightly increased temperature. Pulse and respiration rate were found increase in eight cases. The skin over the back region, one third down the left thoracic and abdominal wall and from neck to pin bones was found affected. Ear and hind legs were also affected. Erythema and sloughing of the skin, oozing of plasma, charring of tissue were observed in all cases. Two buffaloes had second degree burn which involves the epidermis and dermis layer of the skin. These two animals were serious in condition. The general clinical signs like dehydration, erection of hair, dryness of skin, charring of eyelashes, congested mucous membranes were observed in all affected animals.

RESULTS AND DISCUSSION

The animals put on comfortable bedding and treatment was started. Burnt animals kept in a separate shed at the owner house and shed was protected with mesh. To test the efficiency of local antiseptic in the

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burns, the affected animals were divided in two groups of seven animals each (four crossbred cows and three Murrah buffaloes). All the animals (Group I and Group II) were treated with Inj. Strepto penicillin 2.5g I/m for b.i.d for 7 days, Inj. Melonex 0.5 mg /kg I/m for b.i.d, Inj. Tribivet 7 ml in haifers and 10 ml in adults, Inj pheriramine maleate (Avil) 10-15 ml according to body weight I/m for b.i.d for 5 days. Ringer lactate or 5% DNS was the fluid used for overcoming the dehydration at the rate of 25 ml/kg I/V b.i.d for seven days. In Group I animals burn area cleaned with 1:10000 potassium permanganate solution followed by dressing with povidone iodine solution for three weeks. Whereas, in Group II daily cleaning the affected parts was done with 1:10000 potassium permanganate solution followed by silver sulfadiazine hydrophilic ointment on burnt area for three weeks. To prevent the maggot infestation topicure spray was used in both groups. All animals recovered by this treatment but unfortunately one buffalo in Group –I and two buffaloes in Group II which having second degree of burn were died after sixth day of treatment due to hypovolemic shock and severe wound of infection on the thoracic region. Rest of animals in both groups recovered after three week treatment.

The treatment adopted should be multidimensional. They include restoration of fluid and electrolyte loss, protection against mechanical injury, prevention of bacterial invasion and infection (Geiser and walker 1984). The main aim of managing burn injury is to control hypovolemia and to obtain maximal tissue perfusion and oxygen deliver to the burned tissues as well as to health. Age is also an important criterion in burn. In young animals having thin skin and weakness, the body condition worsens earlier, where as, well nourished animals can sustain the injury up to some extent. The percentage of burn is above 50% prognosis is unfavorable. In present study, observed clinical signs of first and second degree burns were in agreement with the clinical signs decribed in burn animals by other workers viz., O'connor (2003), Venrgoplan, (2005) Yadav (2010), Chaudhary *et al*. (2010), Chaudhary *et al*. (2011), Kavitha *et al*. (2011). In present study, three animals out of fourteen animals were died and rest of the eleven animals showed recovery after three weeks in both the groups. In this study povidone iodine and silver sulphadiazine hydrophilic preparation were found almost equally effective when used locally along with antibiotic, NSAID, antihistaminic, corticosteroid, liver tonic and fluid therapy. Strepto penicillin used in the present study helped in control and prevention bacterial infection. Melonex were used as non steroid anti inflammatory drug. Corticosteroid was used as a steroidal anti-inflammatory drug that helped in early wound healing. Pheneramine malate as antihistamine, tribivet as liver tonic and Ringer lactate have compensated the fluid loss from body due to burn. The cleaning of wound with potassium permanganate solution and povidone iodine solution and wound dressing with silver sulphadiazine hydrophilic paste provide an antiseptic and soothing effect. This paste helped in early healing of wound and to overcome the bacterial infection. Similar effect of silver sulphadiazine was also reported by Chaudhary *et al.* (2010). Silver sulphadiazine are good and first choice in antibiotic therapy for bunrs and are used extensively in human medicine, Hanson (2005) and Suther *et al.* (2011). Similar findings were also reported in this present studied case. Similar therapy was used by Yadav (2010), who advised the use of strepto penicillin, inj melonex , antihistamine, tribivet, RL and cleaning of wound.

Note:-I/m =Intramuscular; b.i.d =Twice in a day, I/V= Intravenous

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